

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Currently Amended): A hermetic sealing cap [(1)] employed for an electronic component storage package including an electronic component storing member [(10)] for storing an electronic component [(20)], comprising:

a substrate [(2)];

a first layer [(3)], formed on the surface of said substrate, mainly composed of Ni containing a diffusion accelerator;

a second layer [(4)] formed [[on]] to be in contact with the surface of said first layer; and

a solder layer [(5)] mainly composed of Sn formed on a region of the surface of said second layer to which said electronic component storing member is bonded,

wherein said second layer ~~has a function of inhibiting~~ is formed so as to inhibit said first layer from diffusing into said solder layer at a first temperature ~~while diffusing~~ and diffuse said first layer into said solder layer through said second layer when said solder layer bonds to said electronic component storing member at a second temperature higher than said first temperature.

2. (Currently Amended): The hermetic sealing cap according to claim 1, wherein said first temperature is a temperature at a time of forming said solder layer by melting solder paste [(6)], and

said second temperature is a temperature at a time of bonding said hermetic sealing cap to said electronic component storing member by melting said solder layer.

3. (Previously Presented): The hermetic sealing cap according to claim 1, wherein said second layer is made of Ni.

4. (Original): The hermetic sealing cap according to claim 3, wherein said second layer has a thickness of at least 0.03 μm and not more than 0.075 μm .

5. (Previously Presented): The hermetic sealing cap according to claim 1, wherein said first layer contains 7.5 mass % to 20 mass % of Co as said diffusion accelerator.

6. (Previously Presented): The hermetic sealing cap according to claim 1, wherein said substrate is made of an Fe-Ni-Co alloy.

7. (Previously Presented): The hermetic sealing cap according to claim 1, wherein said first layer and said second layer are formed by plating.

8. (Original): The hermetic sealing cap according to claim 7, wherein said first layer is formed on the whole area of the surface of said substrate, and said second layer is formed on the whole area of the surface of said first layer.

9. (Previously Presented): The hermetic sealing cap according to claim 1, wherein said solder layer contains no Pb, and contains Ag.

10. (Currently Amended): An electronic component storage package including an electronic component storing member [(10)] for storing an electronic component [(20)], comprising:

a hermetic sealing cap [(1)] including

a substrate [(2)],

a first layer [(3)], formed on the surface of said substrate, mainly composed of Ni containing a diffusion accelerator,

a second layer [(4)] formed [[on]] to be in contact with the surface of said first layer, and

a solder layer [(5)] mainly composed of Sn formed on a region of the surface of said second layer to which said electronic component storing member is bonded, [[with]]

wherein said second layer ~~having a function of inhibiting~~ is formed so as to inhibit said first layer from diffusing into said solder layer at a first temperature ~~while diffusing and diffuse~~ said first layer into said solder layer through said second layer when said solder layer bonds to said electronic component storing member at a second temperature higher than said first temperature,

wherein a third layer [(14)] is formed on a portion of said electronic component storing member corresponding to said solder layer,

said solder layer and said third layer are bonded to each other, and

an intermetallic compound [(7)] containing Sn of said solder layer is formed on the junction between said hermetic sealing cap and said electronic component storing member.

11. (Original): The electronic component storage package according to claim 10, wherein

the junction between said hermetic sealing cap and said electronic component storing member contains an intermetallic compound consisting of an Ni-Sn alloy, and

a portion of said second layer corresponding to the junction between said hermetic sealing cap and said electronic component storing member diffuses in said intermetallic compound.

12. (Currently Amended): A method of manufacturing a hermetic sealing cap [(1)] employed for an electronic component storage package including an electronic component storing member [(10)] for storing an electronic component, comprising steps of:

preparing a substrate [(2)];

forming a first layer [(3)] mainly composed of Ni containing a diffusion accelerator on the surface of said substrate;

forming a second layer [(4)] on the surface of said first layer; and

forming a solder layer [(5)] mainly composed of Sn at a first temperature on a region of the surface of said second layer to which said electronic component storing member is bonded with the second layer inhibiting said first layer from diffusing into said solder layer at the first temperature,

~~wherein the step of forming said second layer includes a step of forming the second layer having a function of inhibiting said first layer from diffusing into said solder layer when forming said solder layer at a first temperature while diffusing~~ said second layer is formed such that said first layer diffuses into said solder layer through said second layer when said solder layer bonds to said electronic component storing member at a second temperature higher than said first temperature.

13. (Currently Amended): The method of manufacturing a hermetic sealing cap according to claim 12, wherein

the step of forming said solder layer includes steps of arranging solder paste ~~[[6]]~~ mainly composed of Sn on a region of the surface of said second layer to which said electronic component storing member is bonded and forming said solder layer mainly composed of said Sn by melting said solder paste at said first temperature.

14. (Previously Presented): The method of manufacturing a hermetic sealing cap according to claim 12, wherein

said second layer is made of Ni.

15. (Original): The method of manufacturing a hermetic sealing cap according to claim 14, wherein

said second layer has a thickness of at least 0.03 μm and not more than 0.075 μm .

16. (Previously Presented): The method of manufacturing a hermetic sealing cap according to claim 12, wherein

said first layer contains 7.5 mass % to 20 mass % of Co as said diffusion accelerator.

17. (Previously Presented): The method of manufacturing a hermetic sealing cap according to claim 12, wherein

said substrate is made of an Fe-Ni-Co alloy.

18. (Previously Presented): The method of manufacturing a hermetic sealing cap according to claim 12, wherein

the step of forming said first layer includes a step of forming said first layer by plating, and
the step of forming said second layer includes a step of forming said second layer by plating.

19. (Original): The method of manufacturing a hermetic sealing cap according to claim 18, wherein

the step of forming said first layer by plating includes a step of forming said first layer on the whole area of the surface of said substrate, and

the step of forming said second layer by plating includes a step of forming said second layer on the whole area of the surface of said first layer.

20. (Previously Presented): The method of manufacturing a hermetic sealing cap according to claim 12, wherein

said solder layer contains no Pb, and contains Ag.